1   WE CLAIM:

2   1.   A method for representing lanes with a road database comprising:

3   storing in the road database data representations of physical road lanes; and

4   associating with each data representation of a physical road lane

5   data indicating start and end points of the represented physical road lane;

6   and

7   data indicating what physical features are adjacent to the represented

8   physical road lane on a right side and a left side thereof.

9

10   2.   The method of Claim 1 wherein the data indicating what physical features

11   are adjacent to the represented physical road lane indicate another physical road lane,

12   which can be entered by a lane change.

13

14   3.   The method of Claim 1 wherein the data indicating what physical features

15   are adjacent to the represented physical road lane indicate another physical road lane but

16   which cannot be entered.

17

18   4.   The method of Claim 1 wherein the data indicating what physical features

19   are adjacent to the represented physical road lane indicate a physical road lane is in the

20   process of forming.

21

22   5.   The method of Claim 1 wherein the data indicating what physical features

23   are adjacent to the represented physical road lane indicate a physical road lane is in the

24   process of ending.

25

26   6.   The method of Claim 1 wherein the data indicating what physical features

27   are adjacent to the represented physical road lane indicate a shoulder.

28

29   7.   The method of Claim 1 wherein the data indicating what physical features

30   are adjacent to the represented physical road lane indicate another drivable surface.

1

2   8.   The method of Claim 1 wherein the data indicating what physical features

3 are adjacent to the represented physical road lane indicate no drivable surface.

4

5   9.   The method of Claim 1 further comprising:

6   associating with at least some data representations of physical road lanes data

7 indicating a sublane of the represented physical road lane,

8   wherein the data indicating a sublane include data indicating start and end points

9 of the represented sublane, wherein the data indicating start and end points of the

10 represented sublane are defined relative to an end of the physical road lane of which the

11 sublane is a part.

12

13   10.   The method of Claim 1 further comprising:

14   associating with some data representations of a physical road lane data indicating

15 multiple sublanes of the represented physical road lane,

16   wherein each of the multiple sublanes is represented by data indicating start and

17 end points of the respective associated represented sublane, wherein the data indicating

18 start and end points of the represented sublane are defined relative to an end of the

19 respective associated physical road lane of which the sublane is a part.

20

21   11.   The method of Claim 10 wherein at least some of the sublanes associated

22 with some physical road lanes overlap.

23

24   12.   The method of Claim 1 further comprising:

25   associating with each data representation of a physical road lane data indicating a

26 geometry of the represented physical road lane.

27

28   13.   The method of Claim 12 wherein the geometry of a represented physical

29 road lane includes a clothoid.

30

1   14.   The method of Claim 12 wherein the geometry of a represented physical

2   road lane includes a spline.

3

4   15.   The method of Claim 1 wherein each data representation of a physical

5   road lane further comprises:

6   a reference to at least one data entity used for navigation-related purposes that

7   represents the road segment of which the physical road lane is a part.

8

9   16.   The method of Claim 1 wherein the data representations of physical road

10   lanes represent lanes that are less than full width.

11

12   17.   A method for representing lanes with a road database comprising:

13   storing in the road database data representations of physical road lanes;

14   associating with each data representation of a physical road lane data indicating

15   start and end points of the represented physical road lane; and

16   associating with at least some data representations of physical road lanes data

17   indicating a sublane of the represented physical road lane,

18   wherein the data indicating a sublane include data indicating start and end points

19   of the represented sublane, wherein the data indicating start and end points of the

20   represented sublane are defined relative to an end of the physical road lane of which the

21   sublane is a part.

22

23   18.   The method of Claim 17 wherein the data indicating a sublane include

24   attributes that take precedence over the same attributes of the represented physical road

25   lane of which the sublane is a part.

26

27   19.   The method of Claim 17 wherein some of the data representations of

28   physical road lanes have multiple data representations of sublanes associated with a

29   single physical road lane.

30

1   20.   The method of Claim 19 wherein some of the multiple sublanes associated

2   with a single physical road lane overlap.

3

4   21.   The method of Claim 17 wherein the data representations of physical road

5   lanes represent lanes that are less than full width.

6

7   22.   A database that models roads comprising:

8   data representations of physical road lanes, wherein each data representation of a

9   physical road lane includes

10   data indicating start and end points of the represented physical road lane; and

11   data indicating what physical features are adjacent to the represented physical

12   road lane on a right side and a left side thereof.

13

14   23.   The database of Claim 22 further comprising:

15   data entities that represent roads for navigation-related purposes,

16   wherein the data representations of physical road lanes refer to those data entities

17   that represent roads for navigation-related purposes that represent those roads of which

18   the physical road lanes are a part.

19

20   24.   The database of Claim 22 wherein said data representations of physical

21   road lanes are stored on a computer-readable medium.

22

23   25.   The database of Claim 22 wherein the data representations of physical

24   road lanes represent lanes that are less than full width.

25

26   26.   A database that models roads comprising:

27   data representations of physical road lanes, wherein each data representation of a

28   physical road lane includes

29   data indicating start and end points of the represented physical road lane; and

1   wherein at least some of the data representations of physical road lanes include

2   data indicating a sublane of the represented physical road lane,

3   wherein the data indicating a sublane include data indicating start and end points

4   of the represented sublane, wherein the data indicating start and end points of the

5   represented sublane are defined relative to an end of the physical road lane of which the

6   sublane is a part.

7

8   27.   The database of Claim 26 wherein said data representations of physical

9   road lanes are stored on a computer-readable medium.

10

11   28.   The database of Claim 26 wherein the data representations of physical

12   road lanes represent lanes that are less than full width.

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